ANALYSIS PRODUCTION PROCESS AND THEIR IMPLICATION ON DEFECT RATE AT TEXAS INSTRUMENTS ELECTRONICS MALAYSIA MALACCA (TIEM)

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SUPERVISOR'S APPROVAL

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This report submitted in partial fulfilment of the requirements for Bachelor of Technology Management with Honours (Technology Innovation)

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June 2014

DECLARATION

"I hereby declare that I have read this thesis and in my opinion, this thesis is sufficient in terms of quality and scope to qualify for academic award of Bachelor of Technology Management with Honours (Technology Innovation).

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DECLARATION

"I declare that this thesis entitle 'Analysis Production Process and Their Implication on Defect Rate in Texas Instruments Electronics Malaysia (TIEM) Malacca' is my own work except the citation and excerpts of each of which I have mentioned in the references."

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Date : _____

DEDICATION

I'm thanks to God because giving me a strength and giving me good health to complete this research. A very special thanks to my parents, Mohd MarsahBin Bidin and Zabidah Binti Ahmad, for giving me support in order to complete this research.

Thank you also goes to all my friends who are involved directly or indirectly in completing this research.

ACKNOWLEDGEMENT

First and foremost, I would like to be grateful to Allah S.W.T by reason of giving me chanced to complete my Degree research and giving me a good health during this research. Without His power, I was unable to finish my research in expected time. A big thank you to my supervisor, IR Budiono Hardjono for the valuable guidance and advice. He inspired me greatly to do this research until finish. His willingness to motivate me contribute tremendously to this research. I also would like to thank his for showing me some example to complete this research. Then, an honourable mention goes to my family and friends for their understandings and supports on me in completing this research. Without helps of the particular that mentioned above, I would face many difficulties while doing this.

ABSTRACT

The main focus of this research is to analysis production process and their implication on defect rate. The research will be done in Texas Instruments Electronics Malaysia (TIEM) Sdn. Bhd in Malacca with the cooperation of the Quality manager. During producing products, rejection are always happened due to human error, machine error, work methods or raw materials. So, the company must take an effort to reduce the reject and make the employees able to follow all the procedures also in handling the machines. This research will discuss about defect rate, the way to manage and to reduce the reject that effecting productivity. Some questions will be asked by interviewing and distributing the questionnaire to the respondents. Observation will be done in the field. The relationship between factors in production process and their implication on defect rate will be described. Methodology used in this research is quantitative method. Result of this research can be used as reference to the other companies in the same industry to make their performance better. Academically, the approach of this research also can be used as literature reference to the other researchers.

Keywords: Production process, reducing defect rate, employee skill and work methods.

ABSTRAK

Fokus utama kajian ini adalah untuk analisis proses pengeluaran dan implikasi mereka pada kadar kecacatan. Kajian ini akan dilakukan di Texas Instruments Elektronik Malaysia (TIEM) Sdn. Bhd di Melaka dengan kerjasama pengurus Kualiti. Semasa mengeluarkan produk, rejek sentiasa berlaku disebabkan oleh kesilapan manusia, kesilapan mesin, kaedah kerja atau bahan-bahan mentah. Jadi, syarikat perlu mengambil usaha untuk mengurangkan rejek dan membuat pekerja dapat mengikuti semua prosedur juga dalam mengendalikan mesin. Kajian ini akan membincangkan tentang kadar kecacatan, cara untuk menguruskan dan mengurangkan rejek yang melaksanakan produktiviti. Beberapa soalan akan ditanya oleh temuduga dan mengedarkan soal selidik kepada responden. Pemerhatian akan dilakukan di lapangan. Hubungan antara faktor-faktor dalam proses pengeluaran dan implikasi mereka pada kadar kecacatan akan diterangkan. Kaedah yang digunakan dalam kajian ini adalah kajian kuantitatif. Hasil kajian ini boleh digunakan sebagai rujukan kepada syarikat-syarikat lain dalam industri yang sama untuk membuat prestasi mereka lebih baik. Akademik, pendekatan kajian ini juga boleh digunakan sebagai rujukan sastera kepada penyelidik lain.

Kata Kunci: *Proses Pengeluaran, mengurangkan kadar kecacatan, kemahiran pekerja dan kaedah kerja.*

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LIST OF SYMBOLS

SYMBOL	TITLE
ANOVA	Analysis of Variance
MRA	Multiple Regression Analysis
>	More Than
MA	Manufacturing Assistant
N	Sample Size
%	Percentage
PE	Production Executive
SPSS	Statistic Package for Social Science
TIEM	Texas Instruments Electronics Malaysia

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Chapter 1

Introduction

This chapter is about the introduction of the study. This introduction is important to determine the success of the research using iron triangle. There are common types of introduction for research that must include background of the study, problem statement, research question, research objective, scope, limitation and key assumption of the project.

1.1 Background of the Study

Organizational spend many cost for their process to produce a good products that give satisfied to their customer. The production process will teach to employees for achievement of organizational goals every day for every shift. A process organization is arranged to processes or product lines. The organization focuses on the key business processes that it must absolutely do well in order to gain, satisfy, and retain customers (Summers, 2009, p. 313). Basically, there are same process that will be used in Semiconductor Company in Texas Instrument Electronics Malaysia (TIEM) Malacca. From the production process use, there are many error or rejection rate occur. It was happen in many ways such as machine error, human error, work methods and raw material. The efforts to produce a good products give a big challenges to employees to achieve the organizational goals and they do not run away from mistakes that products become reject.

To meet the challenges posed by the contemporary competitive environment, the manufacturing organizations must infuse quality and performance improvement initiatives in all aspects of their operations to improve their competitiveness (Pintelon and Gelders, 1992). Employees take this challenges with reduce the reject or defect rate to improve the productivity. Therefore, reject always occur because it is involve human error such as forgotten or miscommunication between employees. Organizational have to do a communication to their employees to improve the quality and the employees will be careful in their job.

Quality has increasingly played a key role in manufacturing to enhance a firm's competitive standing in today's highly competitive business environment. Shahbaz et al., (2010) revealed applying the knowledge into work can help to improve the quality of products by better controlling the manufacturing processes and methodologies, and by keeping product and production parameters in range. In production process, many aspect have to take serious such as parameter machine. Defect rate also occur if employee simple manage their machine with many error and it is called machine error.

This research is also important in fault diagnosis, such as predicting assembly errors and defects, which is used to improve the performance of manufacturing quality control activity (Cebrail, 2012). Sometimes, defect rate occur when employees not follow the right procedure or not fully do all the process required. The implementation to reduce defect rate is important based on the technology and skills used by employees. From the technology used, it will show the relation between employees with machine technology, factors influence and how organizational motivate their employees to reduce defect rate. In manufacturing industry, technology is important to use to influence the employee in their daily work.

1.2 Problem Statement

Technology and quality are most important among employees to improve product quality and reduce defect rate in TIEM Malacca. Some organization think that to purchase good machine is very costly and not worth. In addition, organization do not want to hire more engineer in equipment and the problem is machine is always down and error always occur.

KAIZEN is a Japanese word that has become common in many western companies; the word indicates a process of continuous incremental improvement of the standard way of work (Chen et al., 2000). It is translated in the west as ongoing, continuous improvement (CI) (Malik et al., 2007). It is a compound word involving two concepts: KAI (change) and ZEN (for the better) (Palmer, 2001). Most of the manufacturing organizations are currently encountering a necessity to respond to rapidly changing customer needs, desires and tastes. Black, (1991) claimed that to compete in this continuously changing environment, these companies must seek out new methods allowing them to remain competitive and flexible simultaneously, enabling their companies to respond rapidly to new demands. Researcher conclude that quality and technology is important to improve the production process and to reduce defect rate in achieving the goals. This is the reason why the researcher study on analysis production process and their implication to defect rate in manufacturing industry.

1.3 Research Question

The focus of this research is to analyse the production process and their implication to defect rate in TIEM Malacca. So, the research question constructed as:

i) How is the relationship between technology and quality?
ii) What are the work method factors used that influence defect rate in TIEM?
iii) How to resolve and reduce the defect rate?

1.4 Research Objectives

The aim of this study is to investigate the good work methods in reducing defect rate among employee. To achieve the above aim, the researcher found the objectives as below:

i) To investigate the relationship between technology and quality used for production process.
ii) To review the existing work method factors used that influence the defect rate in TIEM.
iii) To analyse the reliability of equipment and employee's skills.

1.5 Scope, Limitation and Key Assumption of the Study

1.5.1 Scope

This research analyse the organization defect rate in TIEM Malacca. The researcher do some research about the work method use in Texas Instruments Electronics Malaysia (TIEM). The study was carried out all the data collection about defect rate among employees and management in this company. Here, the researcher see the view of employees to their work method and the production process towards defect rate occurs.

The researcher collect data from quality department to see how reject occurs and the percentage or frequency reject. The researcher investigate by itself in TIEM, so that the understanding of defect rate occurs in production easily manage. From this study, the researcher made the assessment that the rejection rate always happens and it happens in many ways such as human error, machine error, raw material or work methods.

1.5.2 Limitation

In this research, the researcher found few limitation that have to encounter in success of this study. Firstly, in TIEM Malacaa, there are have three shift and the researcher only focus on one shift. Secondly, the data from the company is a confidential and it is difficult to researcher bring it out. The other problem is researcher have to think about the good ways to distribute the questionnaire to employees without disrupting their work. Other than that, the researcher face a problem that employees afraid to tell how the reject occurs and they also give the same answer like forget.

1.5.3 Key Assumption of the Study

Organizations need good technology to produce quality products and expertise in doing the work so that the products can be reduced from the reject. Employee must perform work using the prescribed procedure to prevent reject. Organization get the benefit and can achieve the goal with the good quality of product. The rule of work is important in production line because if employees follow all the procedure, the production process will run smoothly.

1.6 Importance of the Study

Employee's skill is important to produce product and they have to follow the rule to reduce reject. Organization have to play an important role to achieving their goals and increase productivity in Texas Instruments Electronics Malaysia (TIEM). This study were encourage them to increase work skills and work method. So that, organization can decrease rejection rate and satisfied customer need. The mainly things of this study is to help the organization investigate and the way to reduce rejection rate for future potential.

The researcher may find the findings useful such as employees can share their work method in survey and the work become easy to solve. It is important because factor influencing rejection rate is employee mistakes in doing their jobs like while doing the inspection, their finger touch the wire. Now, organization try to change the methods that the practicalities are held by researcher to reducing rejection rate.

This study can help boost the organization's productivity and the data collection very useful in reducing the number of reject. The relationship between quality and technology in organization is important to complete the production process without high number of reject. Production executive always do a communication to their employees to give their spirit in doing the work especially in night shift.

1.7 Summary

Organization thinks that to purchase good equipment is very costly and not worth on it. In hiring employees also have to make it hard because organization have to hire good skills employees to get the smoothly work. However, the technology used and new hire is to improve productivity thus achieving organization's goal. Technology very important in producing products and employees should take advantage of available technology and use job skills to reduce reject. In addition, organization can give rewards to employees who finds reject like extra money.

Chapter 2

Literature review

2.1 Introduction

This chapter discusses about literature review that would have to be done on production management. It emphasizes on reducing defect rate in production process. As we know, all organization is very concerned about quality of their product to an achievement their target. To achieved the objectives of this study, the information about production process and their implication to defect rate were obtained from various sources i.e., published books, journal and online article. All the data collected is useful to organization for potential future.

2.2 Responsiveness in the Operation

According to Summers (2009) in order to delight its customers, a company must have in place processes and systems that perform as the customer expects, the first time, every time. A process takes inputs and performs value-added activities on those inputs to create an output (Figure 2.1). Organization need input like raw materials, components, instructions, information and criteria. Meanwhile, output represent products, services and results. Ritzman et al., (2010) revealed the production process executes the supply plan to produce the service or product. Nonetheless, the